

AMENDMENTS

In the Claims

Status of Original Claims

1.(Cancel) A method for implementing a thermodynamic cycle comprising the steps of:

- transforming thermal energy from a fully vaporized boiling stream into a usable energy form to produce a lower pressure, spent stream;
- transferring thermal energy from an external heat source stream to a boiling stream to form the fully vaporized boiling stream and a cooled external heat source stream;
- transferring thermal energy from the spent stream to a first portion of a heated higher pressure, basic working fluid stream to form a partially condensed spent stream and a first pre-heated, higher pressure, basic working fluid stream;
- transferring thermal energy from the cooled external heat source stream to a second portion of the heated higher pressure, basic working fluid stream to form a second pre-heated, higher pressure, basic working fluid stream and a spent external heat source stream;
- combining the first and second pre-heated, higher pressure basic working fluid streams to form a combined pre-heated, higher pressure basic working fluid stream;
- separating the partially condensed spent stream into a separated vapor stream and a separated liquid stream;
- pressurizing a first portion of the separated liquid stream to a pressure equal to a pressure of the combined pre-heated, higher pressure basic working fluid stream to form a pressurized liquid stream;
- combining the pressurized liquid stream with the combined pre-heated, higher pressure basic working fluid stream to form the boiling stream;
- combining a second portion of the separated liquid stream with the separated vapor stream to form a lower pressure, basic working fluid stream;
- transferring thermal energy from the lower pressure, basic working fluid stream to a higher pressure, basic working fluid stream to form the heated, higher pressure, basic working fluid stream and a cooled, lower pressure, basic working fluid stream;
- transferring thermal energy cooled, lower pressure, basic working fluid stream to an external coolant stream to form a spent coolant stream and a fully condensed, lower pressure, basic working fluid stream; and

pressurizing the fully condensed, lower pressure, basic working fluid stream to the higher pressure, basic working fluid stream.

1 **2.(Currently Amended)** The method of claim ~~1~~⁹, wherein the external heat source stream is
2 a geothermal stream.

1 **3.(Original and Allowed)** A method for implementing a thermodynamic cycle comprising the
2 steps of:

transforming thermal energy from a fully vaporized basic working fluid stream into a usable
energy form to produce a lower pressure, spent stream;

5 combining the spent stream with a depressurized liquid stream to form a lower pressure
6 mixed stream.

transferring thermal energy from the lower pressure mixed stream to a first portion of a preheated higher pressure, basic working fluid stream to form a cooled mixed lower pressure stream and a first heated, higher pressure, basic working fluid stream;

separating the cooled mixed lower pressure stream into a separated lower pressure vapor stream and a separated lower pressure liquid stream;

mixing a first portion of the separated liquid stream with the separated vapor stream to form a second mixed lower pressure stream.

transferring thermal energy from the second mixed lower pressure stream to a higher pressure, basic working fluid stream to form a pre-heated higher pressure, basic working fluid stream and a cooled second mixed lower pressure stream.

condensing the cooled second mixed lower pressure stream with an external cooling stream to form a fully condensed lower pressure basic working fluid stream.

pressuring the fully condensed lower pressure basic working fluid stream to form a higher pressure basic working fluid stream

transferring thermal energy from a thrice cooled external heat source stream to a second portion of the pre-heated higher pressure basic working fluid stream to form a second heated higher pressure basic working fluid stream and a spent external heat source stream

24 combining the first and second heated higher pressure, basic working fluid streams to form
25 a combined heated, higher pressure, basic working fluid stream;

26 transferring thermal energy from a twice cooled external heat source stream to the combined
27 heated, higher pressure basic working fluid streams to form a hotter higher pressure basic working
28 fluid stream and the thrice cooled external heat source stream;

29 combining a higher pressure separated vapor stream with the hotter higher pressure basic
30 working fluid stream to form a mixed higher pressure stream;

31 transferring thermal energy from a once cooled external heat source stream to the mixed
32 higher pressure stream to form the twice cooled external stream and a partially vaporized higher
33 pressure stream,

34 separating the partially vaporized higher pressure stream into a second separated vapor
35 higher pressure stream and a second separated higher pressure liquid stream;

36 transferring thermal energy from an external heat source stream to the second separated
37 vapor higher pressure stream to form the once cooled external heat source stream and the fully
38 vaporized basic working fluid,

39 reducing the pressure of the second separated higher pressure liquid stream to form a reduced
40 pressure mixed stream;

41 separating the reduced pressure mixed stream into the first separated vapor stream and a first
42 reduced pressure separated liquid stream, and

43 reducing the pressure of the reduced pressure separated liquid stream into the lower pressure
44 liquid stream.

1 **4.(Original and Allowed)** The method of claim 3, wherein the external heat source stream is a
2 geothermal stream.

1 **5.(New)** The method of claim 3, wherein the external heat source stream is a geothermal
2 stream.

1 **6.(New)** The method of claim 3, wherein the working fluid comprises a lower boiling point
2 component fluid and a higher boiling point component.

1 **7.(New)** The method of claim 3, wherein working fluid comprises an ammonia-water mixture,
2 a mixture of two or more hydrocarbons, a mixture of two or more freon, a mixture of hydrocarbons
3 and freon,

1 8.(New) The method of claim 3, wherein working fluid comprises a mixture of water and
2 ammonia.

1 9.(New) A method for implementing a thermodynamic cycle comprising the steps of:
2 transforming thermal energy from a fully vaporized stream into a usable energy form to
3 produce a lower pressure, spent stream;

4 transferring thermal energy from an external heat source stream to a first mixed stream to
5 form the fully vaporized stream and a cooled external heat source stream;

6 transferring thermal energy from the cooled external heat source stream to a combined
7 stream to form a cooler external heat source stream and a partially vaporized combined stream,

8 separating the partially vaporized combined stream into a vapor stream and a liquid stream,

9 combining a first portion of the liquid stream with the vapor stream to form the first mixed
10 stream,

11 reducing a pressure of a second portion of the liquid stream to a pressure of the spent stream
12 to form a lower pressure stream;

13 combining the lower pressure stream with the spent stream to form a mixed spent stream,

14 transferring thermal energy from the cooler external heat source stream to a first portion of
15 a pre-heated, higher pressure, basic working fluid stream to form a first heated, higher pressure,
16 basic working fluid stream and a spent external heat source stream;

17 transferring thermal energy from the mixed spent stream to a second portion of a pre-heated
18 higher pressure, basic working fluid stream to form a second heated, higher pressure, basic working
19 fluid stream and a cooled mixed spent stream;

20 separating the cooled mixed spent stream into a second vapor stream and a second liquid
21 stream;

22 pressurizing a first portion of the second liquid stream to a pressure of the first and second
23 heated, higher pressure basic working fluid streams to form a pressurized liquid stream;

24 combining the first heated, higher pressure basic working fluid streams, the second heated,
25 higher pressure basic working fluid stream and the pressurized liquid stream to form the combined
26 stream;

27 combining a second portion of the second liquid stream with the second vapor stream to from
28 a lower pressure, basic working fluid stream;

29 transferring thermal energy from the lower pressure, basic working fluid stream to a liquid
30 higher pressure, basic working fluid stream to form the pre-heated, higher pressure, basic working
31 fluid stream and a cooled, lower pressure, basic working fluid stream;

32 transferring thermal energy from the cooled, lower pressure, basic working fluid stream to
33 an external coolant stream to from a spent coolant stream and a fully condensed, lower pressure,
34 basic working fluid stream; and

35 pressurizing the fully condensed, lower pressure, basic working fluid stream to form the
36 liquid higher pressure, basic working fluid stream.

1 10.(New) The method of claim 9, wherein the external heat source stream is a geothermal
2 stream.

1 11.(New) The method of claim 9, wherein the working fluid comprises a lower boiling point
2 component fluid and a higher boiling point component.

1 12.(New) The method of claim 9, wherein working fluid comprises an ammonia-water mixture,
2 a mixture of two or more hydrocarbons, a mixture of two or more freon, a mixture of hydrocarbons
3 and freon,

1 13.(New) The method of claim 9, wherein working fluid comprises a mixture of water and
2 ammonia.

1 14.(New) A method for implementing a thermodynamic cycle comprising the steps of:
2 transforming thermal energy from a fully vaporized stream into a usable energy form to
3 produce a lower pressure, spent stream;

4 transferring thermal energy from an external heat source stream to a first mixed stream to
5 form the fully vaporized stream and a cooled external heat source stream;

6 transferring thermal energy from the cooled external heat source stream to a combined
7 stream to form a cooler external heat source stream and a partially vaporized combined stream,

8 separating the partially vaporized combined stream into a vapor stream and a liquid stream,

9 combining a first portion of the liquid stream with the vapor stream to form the first mixed
10 stream,

11 reducing a pressure of a second portion of the liquid stream to a pressure of the spent stream
12 to form a lower pressure stream;

13 combining the lower pressure stream with the spent stream to form a mixed spent stream,

14 transferring thermal energy from the cooler external heat source stream to a first portion of
15 a pre-heated, higher pressure, basic working fluid stream to form a first heated, higher pressure,
16 basic working fluid stream and a spent external heat source stream;

17 transferring thermal energy from the mixed spent stream to a second portion of a pre-heated
18 higher pressure, basic working fluid stream to form a second heated, higher pressure, basic working
19 fluid stream and a cooled mixed spent stream;

20 separating the cooled mixed spent stream into a second vapor stream and a second liquid
21 stream;

22 pressurizing a first portion of the second liquid stream to a pressure of the first and second
23 heated, higher pressure basic working fluid streams to form a pressurized liquid stream;

24 separating the lower pressure stream into a third vapor stream and a third liquid stream,

25 combining the pressurized liquid stream with the third vapor stream to form a partially
26 pressurized mixed stream,

27 pressurizing the pressurized mixed stream to a pressure of the first and second heated, higher
28 pressure basic working fluid streams to form a pressurized stream;

29 combining the first heated, higher pressure basic working fluid streams, the second heated,
30 higher pressure basic working fluid stream and the pressurized stream to form the combined stream;

31 combining a second portion of the second liquid stream with the second vapor stream to from
32 a lower pressure, basic working fluid stream;

33 transferring thermal energy from the lower pressure, basic working fluid stream to a liquid
34 higher pressure, basic working fluid stream to form the pre-heated, higher pressure, basic working
35 fluid stream and a cooled, lower pressure, basic working fluid stream;

36 transferring thermal energy from the cooled, lower pressure, basic working fluid stream to
37 an external coolant stream to from a spent coolant stream and a fully condensed, lower pressure,
38 basic working fluid stream; and

39 pressurizing the fully condensed, lower pressure, basic working fluid stream to form the
40 liquid higher pressure, basic working fluid stream.

1 15.(New) The method of claim 14, wherein the external heat source stream is a geothermal
2 stream.

1 16.(New) The method of claim 14, wherein the external heat source stream is a geothermal
2 stream.

1 17.(New) The method of claim 14, wherein the working fluid comprises a lower boiling point
2 component fluid and a higher boiling point component.

1 18.(New) The method of claim 14, wherein working fluid comprises an ammonia-water
2 mixture, a mixture of two or more hydrocarbons, a mixture of two or more freon, a mixture of
3 hydrocarbons and freon,

1 19.(New) The method of claim 14, wherein working fluid comprises a mixture of water and
2 ammonia.

1 20.(New) A method for implementing a thermodynamic cycle comprising the steps of:
2 transforming thermal energy from a fully vaporized stream into a usable energy form to
3 produce a lower pressure, spent stream;

4 combining the spent stream with a lower pressure, liquid stream to form a lower pressure
5 mixed stream,

6 transferring thermal energy from the lower pressure mixed stream to a first portion of a pre
7 heated higher pressure, basic working fluid stream to form a cooled mixed lower pressure stream
8 and a first heated, higher pressure, basic working fluid stream;

9 separating the cooled mixed lower pressure stream into a separated lower pressure vapor
10 stream and a separated lower pressure liquid stream;

11 combining a first portion of the separated lower pressure liquid stream with the separated
12 vapor stream to form a mixed lower pressure, basic working fluid stream,

13 transferring thermal energy from the mixed lower pressure, basic working fluid stream to
14 a higher pressure, basic working fluid stream to form a pre-heated higher pressure, basic working
15 fluid stream and a cooled mixed lower pressure, basic working fluid stream,

16 condensing the cooled mixed lower pressure, basic working fluid stream with an external
17 cooling stream to form a fully condensed, lower pressure, basic working fluid stream,
18 pressuring the fully condensed, lower pressure, basic working fluid stream to form the higher
19 pressure, basic working fluid stream,
20 transferring thermal energy from a thrice cooled external heat source stream to a second
21 portion of the pre-heated, higher pressure, basic working fluid stream to form a second heated,
22 higher pressure, basic working fluid stream and a spent external heat source stream,
23 combining the first and second heated, higher pressure, basic working fluid streams to form
24 a combined heated, higher pressure, basic working fluid stream;
25 transferring thermal energy from a twice cooled external heat source stream to the combined
26 heated, higher pressure, basic working fluid streams to form a hotter, higher pressure, basic working
27 fluid stream and the thrice cooled external heat source stream;
28 combining a higher pressure, stream with the hotter, higher pressure, basic working fluid
29 stream to form a mixed, higher pressure stream;
30 transferring thermal energy from a once cooled external heat source stream to the mixed,
31 higher pressure stream to form the twice cooled external stream and a partially vaporized, higher
32 pressure stream,
33 separating the partially vaporized, higher pressure stream into a higher pressure, vapor
34 stream and a higher pressure, liquid stream;
35 transferring thermal energy from an external heat source stream to the higher pressure, vapor
36 stream to form the once cooled external heat source stream and the fully vaporized stream,
37 reducing the pressure of the higher pressure, liquid stream to form a reduced pressure stream;
38 separating the reduced pressure stream into a reduced pressure, vapor stream and a reduced
39 pressure, liquid stream,
40 reducing the pressure of the reduced pressure, liquid stream into the lower pressure, liquid
41 stream,
42 pressuring a second portion of the separated lower pressure liquid stream a pressurized liquid
43 stream,
44 combining the pressurized liquid stream with the reduced pressure, vapor stream to form an
45 intermediate pressure, mixed stream, and
46 pressuring the intermediate pressure, mixed stream to form the higher pressure, stream.

1 21.(New) The method of claim 20, wherein the external heat source stream is a geothermal
2 stream.

1 22.(New) The method of claim 20, wherein the external heat source stream is a geothermal
2 stream.

1 23.(New) The method of claim 20, wherein the working fluid comprises a lower boiling point
2 component fluid and a higher boiling point component.

1 24.(New) The method of claim 20, wherein working fluid comprises an ammonia-water
2 mixture, a mixture of two or more hydrocarbons, a mixture of two or more freon, a mixture of
3 hydrocarbons and freon,

1 25.(New) The method of claim 20, wherein working fluid comprises a mixture of water and
2 ammonia.